Amendments have also been made to various dependent claims to make them consistent with amended claims 1 and 22.

The examiner has rejected claims 1 and 22 as anticipated by Fulthorp (US 5737330). The examiner is urged to reconsider and withdraw the rejection, as Fulthorp does not come even close to suggesting the invention.

Fulthorp has a permanent master device that can receive requests from slave devices for establishment of a TDMA session in which the slave is assigned a time slot for contention-free transmission. The slave devices use CSMA to make the request of the master.

This is altogether different from the invention, which permits any of a plurality of devices to exchange messages with any other of the plurality of devices using a CSMA contention-oriented service to establish a session of contention-free intervals for use by the two devices. Whereas in Fulthorp it is always the master device that determines the timing for transmissions during the contention-free intervals, with the invention it can be any of the devices that establishes that timing. That device can, in preferred embodiments, temporarily become the master device for purposes of the established session of contention-free intervals, but it is not the permanent master as in Fulthorp.

Accordingly, claims 1 and 22 are in condition for allowance.

The remaining claims are all properly dependent on one of claims 1 and 22, and are thus allowable therewith. New dependent claims 23-44 (which depend from claim 22) have been added mirroring dependent claims 2-21 (which depend from claim 1). Each adds one or more additional limitations that enhance patentability, but these are not presently relied upon.

Attached is a marked-up version of the changes being made by the current amendment.

Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/2/02

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Version with markings to show changes made

In the specification:

Paragraph beginning at page 10, line 3 has been amended as follows:

-- During a data transmit process, data and control information are received at the PHY-to-MAC interface (MAC interface) 74 over the PHY-to-MAC bus 24. The MAC interface provides the data to the scrambler 32, which ensures that the data as presented to the input of the data FEC encoder 34 are substantially random in pattern. The data FEC encoder 34 encodes the scrambled data pattern in a forward error correction code and subsequently interleaves the encoded data. Any forward error correction code, for example, a Reed-Solomon, or both a Reed-Solomon code and a convolution code, can be used for this purpose. The modulator 36 reads the FEC encoded data and FEC encoded control information from the frame control FEC encoder 38, and modulates the encoded data and control information onto carriers in OFDM symbols in accordance with conventional OFDM modulation techniques. Those modulation techniques may be coherent or differential. The modulation mode or type may be Binary Phase Shift Keying with [□] 1/2 rate coding ("[□] [□] 1/2 BPSK[□]"), Quadrature Phase Shift Keying with [□] 1/2 rate coding ("[□][□] 1/2 QPSK[□]"), QPSK with 3/4 rate coding ("[□]3/4 QPSK[□]"), among others. The IFFT unit 42 receives input from the modulator 36, the frame control FEC encoder 38 and synchronization signal generator 40, and provides processed data to post IFFT functional units (not shown), which further process the contents of the frame before transferring it to the AFE unit 26 (from FIG. 1). --

Paragraph beginning at page 12, line 22 has been amended as follows:

-- For purposes of simplification and clarity, other details of the PHY unit[□]'s transmitter/receiver functional units (which are known to those skilled in the art and not pertinent to the invention) have been largely omitted herein. --

Paragraph beginning at page 12, line 25 has been amended as follows:

-- Referring to FIG. 3, a format of a data transmission frame 80 to be transmitted over the transmission medium 14 by the transmitting network station 12a is shown. The data transmission frame 80 includes a payload 82, which carries the data received from the MAC unit 18. This data includes a header 84, body 86 and frame check sequence (FCS) 88. Preferably, the payload 82 is transmitted and received by the functional units illustrated in FIG. 2 in accordance with techniques described in co-pending U.S. Patent Application Serial No. 09/455,186, entitled "[□]Forward Error Correction With Channel Estimation,[□]" in the name of Lawrence W. Yonge III et al., co-pending U.S. Patent Application Serial No. 09/455,110, entitled "[□]Enhanced Channel Estimation,[□]" in the name of Lawrence W. Yonge III et al., and co-pending U.S. Patent Application Serial No. 09/377,131, entitled "[□]Robust Transmission Mode[□]", in the name of Lawrence W. Yonge III et al., all of which are incorporated herein by reference; however, other techniques may be used. The aforementioned U.S. Application Serial No. 09/377,131 ("Robust Transmission Mode") describes a standard mode and a reduced data rate robust mode (hereinafter, simply referred to as "ROBO mode"), the ROBO mode providing for extensive diversity (in time and frequency) and data redundancy to improve the ability of the network stations to operate under adverse conditions. --

Paragraph beginning at page 14, line 30 has been amended as follows:

-- The first frame control field 98, the second frame control field 102 and the third frame control field 124 are produced by the frame control FEC encoder 38 in conjunction with the modulator 36 based on control information received from the MAC unit 18. Generally, the frame control fields 98, 102 and 124 include information used by all stations in the network for channel access, and, in the case of frame control field 98, information used by the destination for receiver demodulation. Because the frame control fields 98, 102 and 124 are intended to be heard by all stations, it is desirable for the frame control fields 98, 102 and 124 to have a robust form of physical layer encoding and modulation. Preferably, they are protected from transmission errors by a block code enhanced with time and frequency domain interleaving, as well as redundancy, in accordance with techniques described in a co-pending U.S. application Ser. No.[___ (Attorney Docket 04838/050001)] 09/574,959, now issued U.S. Patent No. 6,289,000, entitled "Frame Control Encoder/Decoder for Robust OFDM Frame Transmissions,"

in the name of Lawrence W. Yonge III, incorporated herein by reference, although other techniques may be used. --

In the claims:

Claims 1, 2, 4, 7, 13, 14, 15, 16, 19, and 22 have been amended as follows.

1. (Once Amended) A method of operating in a CSMA network in which a plurality of devices communicate over a medium, comprising:

[exchanging] having a first device, which can be any of the plurality of devices, exchange messages [by a device] with a second device [over a], which can be any of the plurality of devices, over the medium using a CSMA contention-oriented service to establish a session of [periodic] contention-free intervals within the CSMA contention-oriented service for use by the first device and the second device for contention-free traffic [on the medium;] between the devices, and

[determining by the device] having the first device determine when transmissions can occur on the medium during the contention-free intervals based on the exchanged messages.

2. (Once Amended) The method of claim 1, wherein the first device [is] becomes a master device and the second device [is a slave device] becomes a slave device for purposes of the established session of contention-free intervals.

4. (Once Amended) The method of claim 1, wherein the first device and the second device each includes a MAC unit coupled to a host, further comprising:

responsive to the connection control messages exchange, receiving a set connection message from the host at the MAC unit, the set connection message including a connection number assigned to a connection between the first device and the second device, a master flag for indicating if the first device is the master device and a control flag for indicating that master control is to be passed and the direction in which the master control is to be passed.

7. (Once Amended) The method of claim 5, wherein the first device [is] becomes a master device and the second device [is] becomes a slave device for purposes of the established

session of contention-free intervals, and wherein the contention-free traffic includes a downstream frame from the master device and an upstream frame from the slave device.

13. (Once Amended) The method of claim 4, wherein the first device [is] becomes a slave device and the second device [is] becomes a master device for purposes of the established session of contention-free intervals, and the contention-free traffic includes a downstream frame by the master device and an upstream frame by the slave device, and wherein the set connection message further includes a lifetime timer value for indicating when a queued frame is to be discarded when the downstream frame has not been received from the master device.

14. (Once Amended) The method of claim 4, wherein the [device is a master device, further comprising:] first device becomes a master device for purposes of the established session of contention-free intervals, and wherein the method further comprises passing master control from the master device to the second device when the master flag and the control flag are set.

15. (Once Amended) The method of claim 4, wherein the second device [is a master, further comprising:] becomes a master device for purposes of the established session of contention-free intervals, and the method further comprises receiving master control from the master device when the master flag and the control flag are set.

16. (Once Amended) The method of claim 5, wherein the first device [is] becomes a slave device for purposes of the established session of contention-free intervals and wherein the connection control messages indicate that the slave device is to transmit the last frame in the contention-free interval, [further comprising:] and wherein the method further comprises,

responsive to the exchange and triggered to transmit by a downstream frame, transmitting an upstream frame with the contention control indicator having a value for indicating that the contention-free interval is terminated.

19. (Once Amended) The method of claim 1, wherein the [device is a master device, further comprising:] first device becomes a master device for purposes of the established session

of contention-free intervals, and the method further comprises exchanging messages between the first device and a third device in a different logical network for arranging to pass control of the session to the third device in the different logical network.

22. (Once Amended) A computer program residing on a computer-readable medium for operating in a CSMA network in which a plurality of devices communicate over a medium, the computer program comprising instructions [causing a computer to] for:

having a first device, which can be any of the plurality of devices, exchange messages [by a device] with a second device [over a], which can be any of the plurality of devices, over the medium using a CSMA contention-oriented service to establish a session of [periodic] contention-free intervals within the CSMA contention-oriented service for use by the first device and the second device for contention-free traffic [on the medium;] between the devices, and

[determine by the device] having the first device determine when transmissions can occur on the medium during the contention-free intervals based on the exchanged messages. --